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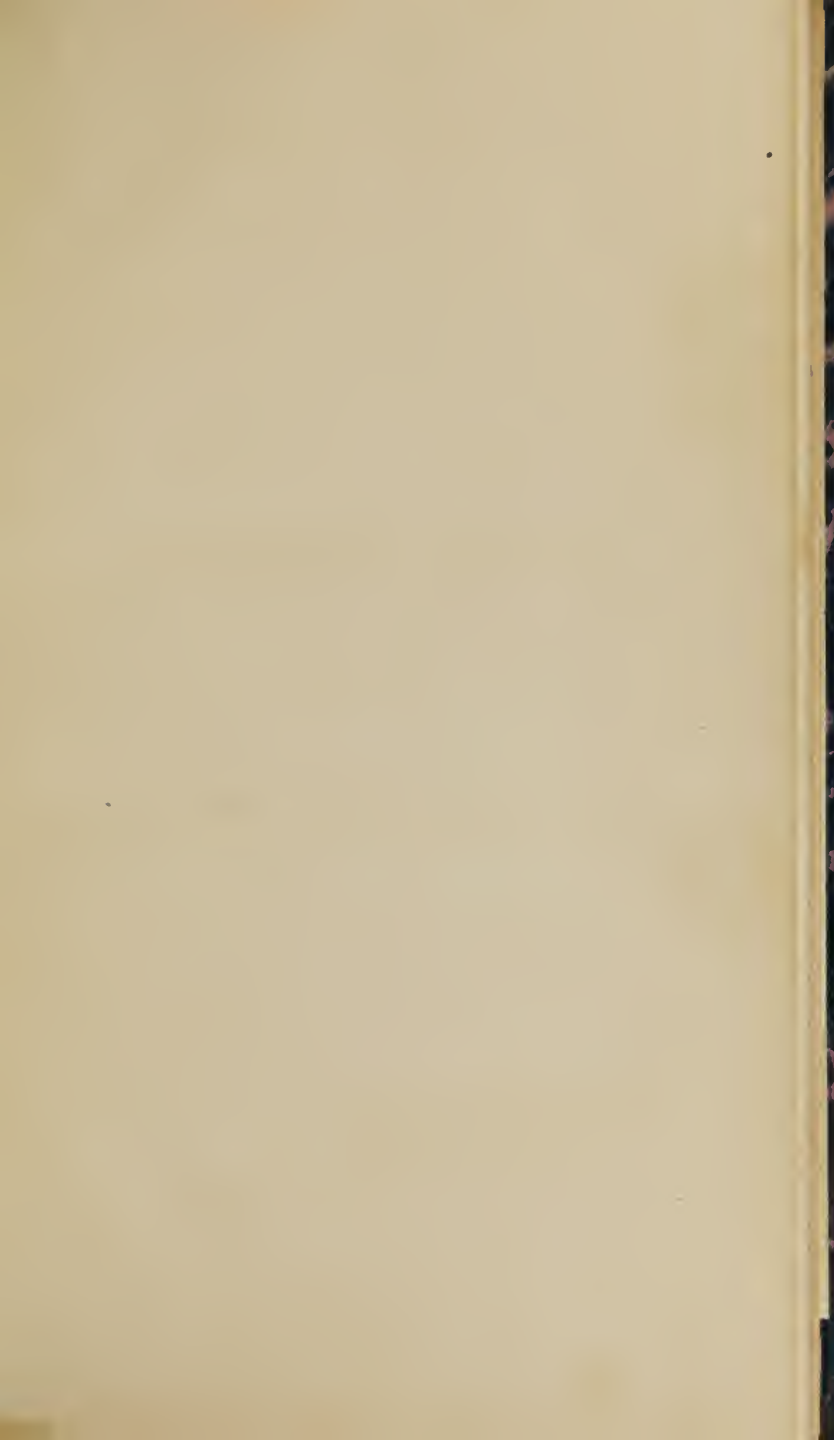
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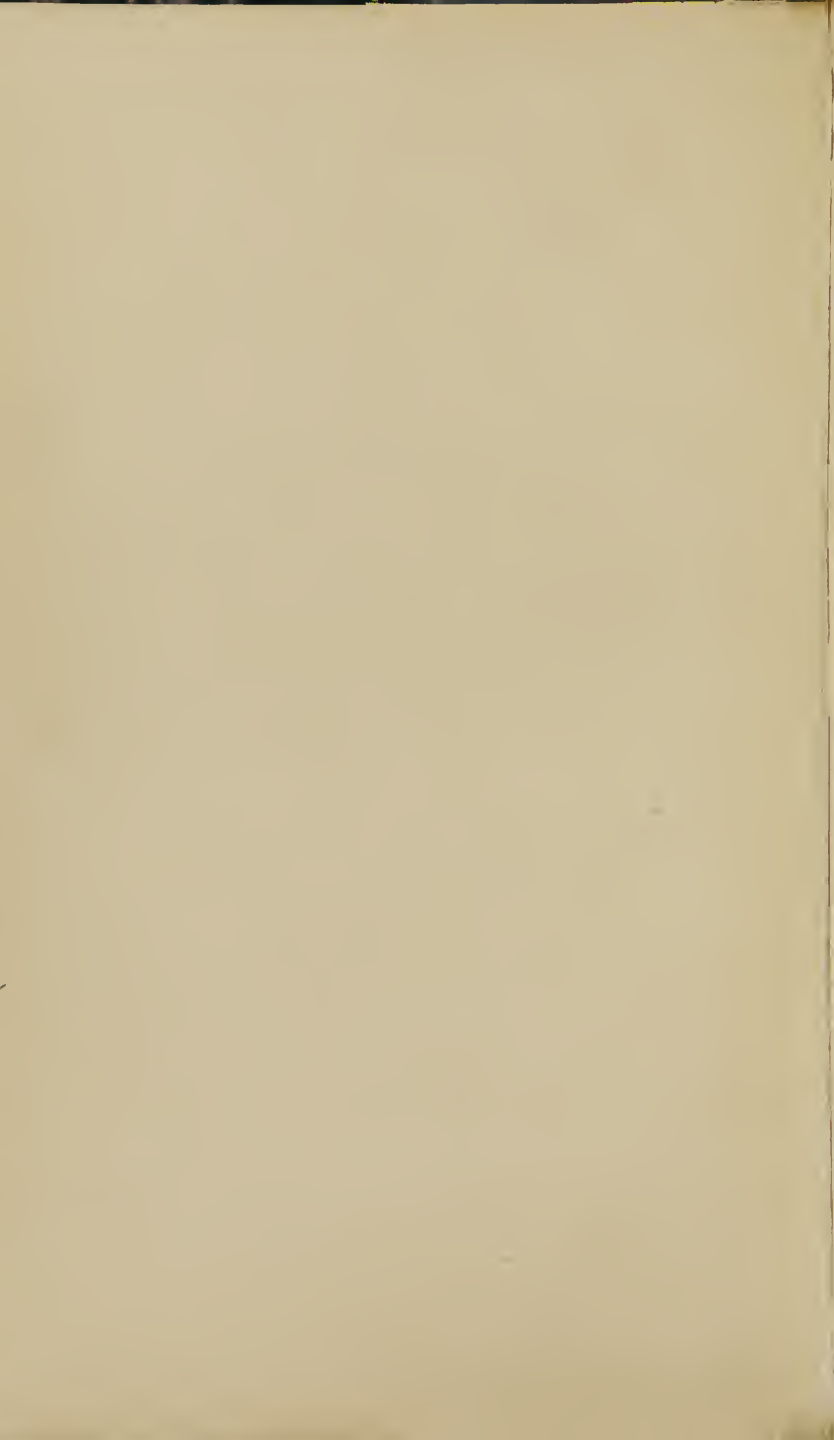
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ARMY MEDICAL LIBRARY

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A N

INAUGURAL DISSERTATION

O N T H E

MALIGNANT FEVER.

Doctor Buxton
with respectful compliments
from his friend
The Author

A N
INAUGURAL DISSERTATION
O N T H E
M A L I G N A N T F E V E R,

WHICH PREVAILED IN THE CITY OF NEW-YORK DURING
THE MONTHS OF AUGUST, SEPTEMBER, AND
OCTOBER, IN THE YEAR 1791.

SUBMITTED TO THE EXAMINATION
O F T H E
Rev. WILLIAM LINN, D.D. P. T. President;
A N D T O T H E
T R U S T E E S A N D F A C U L T Y
O F
QUEEN'S COLLEGE, NEW-JERSEY;
FOR THE DEGREE OF
D O C T O R o f M E D I C I N E,
WITH THE RIGHTS AND IMMUNITIES THEREUNTO
APPERTAINING.

BY JONAS SMITH ADDOMS,
O F N E W - Y O R K .

NON DOMUS ET FUNDUS, NON ÆRIS ACERVUS ET AURI,
ÆGROTO DOMINI DEDUXIT CORPORE FEBRES.

21933
HOR. EP. I.

N E W - Y O R K :
PRINTED BY T. AND J. SWORDS, No. 27, WILLIAM-STREET.
—1792.—

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TO HIS EXCELLENCY
GEORGE CLINTON,

Governor of the State of NEW-YORK, General and Commander
in Chief of the Militia, and Admiral of the Navy of the same ;

W H O,

From a Series of Services, merits to be considered

The FATHER of the STATE ;

By being highly instrumental in establishing its

INDEPENDENCE ;

By the equal Administration of its

L A W S ;

By the Regulating its

FINANCES TO OPULENCE ;

A N D,

By evidencing himself

The Patron of the Arts and Sciences :

T H I S

D I S S E R T A T I O N,

As a grateful Testimony of Respect,

Is inscribed,

By his obliged Servant,

The AUTHOR.

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INAUGURAL DISSERTATION

O N T H E

M A L I G N A N T F E V E R.

DISEASES, which have proved violent in their progress, or fatal in their termination, prevailing through cities, states or empires, have not only claimed the attention of the physician, but have been scrupulously noted by the philosopher, historian* and poet. Lucretius gives a description of a disease which almost depopulated Athens.

Principio caput incensum fervore gerebant,
Et dupliceis oculos suffusa luce rubenteis,
Sudabant etiam fauces intrinsecus atro
Sanguine, & ulceribus vocis, via septa coibat,
Atque animi interpres manabat lingua cruore,
Debilitata malis, motu gravis aspera tactu.

LUCRET. lib. vi.

The inimitable Thomson also has introduced in his *Summer*, an account of a fever which destroyed a great number of Admiral Vernon's troops when before Carthagera.

Sick nature blasting, and to heartless woe,
And feeble desolation, casting down
The towering hopes and all the pride of man.

—— You,

* Diadorus Siculus gives an account of a fever which broke out and proved very destructive among the Carthaginians in Sicily, at the siege of Syracuse. See BIBLIOTH. HIST. lib. xiv. cap. 70 and 71.

————— You, pitying, saw
 To infant-weakness sunk the warrior's arm ;
 Saw the deep-racking pang, the ghastly form,
 The lip pale-quivering, and the beamless eye
 No more with ardour bright.——

THOMSON'S SEASONS, Summer, l. 1036.

Wherever medical records have been faithfully kept by physicians, fevers have been scrupulously noticed and investigated. The necessity of this we will not wonder at, when we come to consider the great proportion of diseases, which are either originally fevers, or become so from some symptomatic affection :— But fevers of the putrid kind have particularly drawn their attention, both on account of their fatality, and universal prevalence when they have taken place, as well as the difficulty in the method of cure. The uniformity of the pathognomonic symptoms in putrid fevers, from the days of Hippocrates to the present time, is so great, that it renders almost all the histories of this disease like mere copies from one author to another. However, when it rages epidemically, it may yet have some accidental symptoms, which have frequently led physicians to suppose it a different disease, and consequently to give it a different name. It was this that led the great Sydenham, and the illustrious Boerhaave, those luminaries of the profession of medicine, to believe that fevers were unlimited in their number ; which, according to the observations of Sir John Pringle, Doctor Huxham, the late Professor Doctor Cullen,* and others, is now proved to be exceedingly limited. Thus we shall find, in the history of the disease under consideration, some accidental symptoms observed, which made physicians differ very much in the method of cure, as well as in their opinion of the nature of the fever.

It

* Cullen's First Lines, par. lxvii.

It is not, however, my design to enter into a general description of fevers, and their differences; but merely to take notice of the epidemic which lately raged so universally in this city and its suburbs.

About the middle of August, 1791, a contagious fever appeared in the city of New-York, which first discovered itself near Peck's-slip, a part of the city thickly inhabited, its houses generally small, and badly ventilated: many of the inhabitants were in indigent circumstances, which is a frequent cause of the want of cleanliness. Here it raged a considerable time; it then began to spread, as some attendants on the sick became affected, who lived in other neighbourhoods. By this mean it was carried to different families, and most generally could be traced from this source. It likewise proved more particularly fatal near the place where it first appeared, than in any other part. Thus at length it spread through the city, until about the middle of October, when the weather growing a little cooler, the disease greatly abated, and in a short time nearly disappeared. I have been informed by several physicians of reputation, who reside and practice in the country, that many of the boatmen, who frequented the city from Long-Island and the upper part of Hudson's river, carried the disease home, where it proved fatal to several.*

At the same time, in the south-western part of the city, an intermittent and remittent fever prevailed,
together

* Doctor William Moore, an eminent physician of New-York, informed me, that a gentleman from Lime, in the state of Connecticut, was on a visit to this city, when he became a patient of his, in whom the disease was very evidently marked, attended with large vibices; he however recruited considerably before he left the city: on his passage to Lime he relapsed, and died shortly after he reached home. The greater part of his family caught the contagion, and soon became affected with a similar disease; which proved fatal to his mother, and some other persons in the family.

together with a few cases of dysentery. This caused much dispute among physicians, as they generally named the disease from the cases which they had an opportunity of seeing most prevalent. Some called it a remittent, others bilious; some typhus, putrid, or malignant; and others, following Sydenham, *febris biliosa remittens*.

In consequence of a few cases terminating suddenly fatal, together with the very unjust, as well as ungenerous judgment of some physicians, in determining every disease to be the putrid fever, fear spread from mind to mind like a devouring famine, and terror, frequently more hideous than the disease itself, wrought on the minds of the credulous and weak. This, in some cases, greatly increased the malignity of the fever: in others again, even a slight head-ach caused them to despond, and threw them into a state of langour more easily conceived than described, but without the real symptoms of the fever. Whether this diagnostic was given through ignorance, or as a professional trick, in order to gain applause by making many and speedy cures, is uncertain; however, it was nevertheless so considered. Thus some physicians obtained a credit in curing the complaint, without possessing any real merit.

CHAPTER I.

HISTORY OF THE DISEASE.

THIS disease generally, in the first place, affected the person with a sense of chilliness, alternating with gentle flushings—and a sense of soreness of all the muscles; the face appeared pale, the features shrunk, the body weary, as if it had undergone some great fatigue, attended with yawnings and stretchings of
the

the extremities; a disinclination for any bodily exercise; and when any exertion was made, it was attended with sluggishness and uneasy sensations. The pulse at this time was weak and frequent; the mental faculties were likewise impaired, and frequently a small pain in the head, attended with sighings and anorexy: respiration being anxious and rather small at this stage of the disease.

In some cases, the following symptoms took place without the patient's knowledge of the former having past: they however, in general, preceded violent pains in the head, back, and loins:—A pulse more tense, full, and something increased in fulness. (In one case, the patient compared the pulsation of the temporal arteries, to the striking of a hammer against his temples.) In some, a delirium came on immediately after the cold stage, so that the persons affected got out of their beds, and wandered about their rooms or houses. Sometimes nausea and vomiting appeared early in the disease, which proved very troublesome, and greatly debilitated the patient. Respiration was now rather laborious than anxious; the skin dry and hot, belly most commonly costive, though some had a gentle diarrhoea from the beginning of the disease; no appetite, but a great desire for drink, particularly any united with vegetable acids, as the acid of lemons, &c. the adnatæ of the eyes, in some, were much inflamed, so that light became scarcely tolerable; the countenance, on the first and second days, in many, appeared much flushed, attended continually with a violent head-ach, so as frequently to produce delirium, with restlessness and watchings, which greatly exhausted the patient's strength; the tongue was generally dry, and in the beginning of the disease covered with a whitish scurf, and the patient complained much of anxiety, or a great sense of weight at the præcordia: the excrementitious

mentitious discharges, whether natural or produced by art, were very fetid and disagreeable.

About the third day, the inflammatory symptoms greatly changed, to those of a putrid kind, or a remission of the fever took place: if the latter did not succeed, the tongue became dry, and began to be covered with a brown or black fordes: not long after the teeth and lips put on the same appearance; respiration became more anxious, with an increased prostration of strength: the vital functions at this time were much more disturbed; watching, or a comatose state, now took place, if it had not before appeared; and even those who did sleep, enjoyed it but for a few moments, when they waked as if in a fright: the pulse became smaller, weaker, and more frequent; thirst was greatly increased; nausea much more intolerable, together with the sense of oppression at the stomach: those who had not vomited before, had that direful symptom added now to the others: the contents of the stomach, which were thrown up in the act of vomiting, were generally of a fetid nature; the voice began to be changed; small petechiæ appeared about the neck and breast; when the body, and even the room, unless well ventilated, had a cadaverous smell—The patient kept continually rolling or turning in the bed, and frequently picking the bed-clothes. In some, the bowels at this stage of the disease were very costive, so that recourse was obliged to be had to artificial means, whenever it became necessary to evacuate their contents: in others, a profuse diarrhoea considerably increased the weakness of their debilitated bodies. Most generally, on the fourth or fifth day of the disease, with those to whom it proved fatal, all the last mentioned symptoms were greatly increased, together with a cadaverous smelling sweat, which would appear on the body when the trunk was hot and the extremities

extremities cold: the pulse became more frequent, irregular, and sometimes intermittent: the person would lay on his back, with his knees drawn up, and his body appearing as if falling down in the bed; his voice low, and scarcely perceptible: he was now senseless of persons standing around, or any of their proceedings: the pulse in this stage of the disease was so weak as scarcely to be felt: the extremities put on a livid appearance. From the comatose state which had already taken place, the patient could hardly be roused by the strongest stimuli of sound and light, though in the beginning of the disease he was scarcely able to bear the most gentle; and if he should be roused from this situation, in a few moments the same would again succeed. The urine and stools were frequently involuntarily discharged; a hiccup followed, if it had not before taken place; and the person, in consequence of universal debility producing inability to discharge the natural secretion in the bronchial vessels, appeared as if choaking with phlegm, or something pent up in the trachea: convulsions, or subfultus tendinum, now affected the frame; the eyes put on a glassy appearance; and death, in a short time, closed the scene.

This was the general course of the symptoms in those to whom the disease proved mortal; but in some they came on a little sooner, in others later: in some, petechiæ, and even maculæ and vibices, extended over the body before death, though all shewed evident signs of putrescency directly after.

In one person, on the afternoon of the second day, an entire intermission of his symptoms took place: on the morning of the third, they returned with increased violence, when a vomiting came on, with apthæ appearing in the mouth and fauces. Upon taking a few drops of any thing in the stomach, vomiting would immediately be produced, which terminated

terminated in hiccup: this continued a few minutes, it would then subside until any thing was again swallowed, when the same circumstances returned. Petechiæ appeared on his neck and breast the fifth day; and as nothing could be retained on his stomach, he was supported with glysters of broth for several days, to which, as there was no other way of administering it, the red bark was added. The pulse in this person remained good until within a few hours of his death, when it began to diminish, weaken, and became intermittent. From this time, it was remarked any thing would remain on his stomach; the hiccup ceased, and death in a few hours closed the scene. This was on the morning of the seventh day.

In some, the disease made its appearance in a more gradual manner, without any inflammatory symptoms attending it, and most commonly those were protracted beyond the eleventh or fourteenth days, when a remission or intermission took place, or the person sunk under the disease. There were some who recovered, as well as those who perished, on whom petechial eruptions appeared; and the stomach in many of those who survived, was very much disordered.

Some had other accidental symptoms accompanying the disease, such as a dry tickling cough, pains in different parts of the thorax, with other catarrhal and pneumonic symptoms; so that some physicians were induced to declare it a simple inflammatory fever, and treat it accordingly. In other patients, a billious yellowness appeared over the surface of the body, the vessels in the adnatæ of the eyes were filled with bile, and attended with the other symptoms of Doctor Cullen's species of typhus, the icteroides.

Many

Many of those who survived the disease were a long time troubled with rheumatic pains of a chronic nature, or a small eruption over the surface of their bodies, which seemed to be caused by the debilitated state in which the disease had left them; and the eruption appeared to depend particularly on a weakened action of the extreme vessels.

CHAPTER II.

IN classing diseases, it should be our endeavour to reduce the genera and species to as limited a number as the nature of things will admit, observing due perspicuity in the definition of the complaint. By this means, an author is enabled to communicate his ideas with much greater facility and clearness; and indeed, one circumstance which gives the moderns an ascendancy over the ancients, is the simplicity to which our profession is at present reduced, by means of accurate nosological arrangement; therefore, in classing the disease which I make the subject of this dissertation, from the symptoms related in the former chapter, I shall simply call it a *typhus fever*, although the greater number of cases would evidently come under the genus of *synochus*, as described in Doctor Cullen's *Synopsis Nosologiæ Methodicæ*. When, however, I differ from so eminent, experienced and learned a physician as Doctor Cullen, it is with the greatest diffidence, and after a very attentive examination of the subject. It appears to me very clear, that *synochus* should not have a place as a genus in nosology, but should only be a variety of *typhus*, because both are produced by the same cause,* and only differ according to the predisposition

* Edin. Med. Com. vol. xi. page 220.

predisposition of the person affected, or some concurring causes. Doctor Cullen himself is doubtful of the justness of his classification.* It may also be observed, that, if the same contagion produces the species typhus icteroides that does the petechialis, of which there is little doubt, as it appears to be the opinion of Doctor Cullen, it should be a variety of typhus, and not a different species, as its difference depends only on the accidental symptom of bile being mixed with the mass of circulating fluids.† We then should have three varieties under the genus of typhus: 1st. Typhus cum symptomatibus phlegmasiæ. 2d. Typhus (petechialis) plerumque cum petechiis. 3d. Typhus (icteroides) cum flavidine cutis. I am not tenacious in what manner they stand with respect to each other.

CHAPTER III.

C A U S E S.

IN considering the causes of the fever I am treating of, I shall divide them into three kinds, as they take place in operating upon the human body, when they concur to produce disease, viz. *predisponent*, *occasional* or *exciting*, and *proximate* causes. The two former have been frequently considered together, under the title of *remote cause*, and with some degree of propriety, because one only renders the body more liable to the operation of the other.

SECT.

* Synopsis Nosologiæ Methodicæ Culleni, tom. ii. p. 78, 79. Cullen's First Lines Pract. Physic, parag. 79. Romaine's MS. Lectures of 1791 and 1792. Pract. Medicine.

† Edin. Med. Com. vol. ix. p. 238. Romaine's MS. Lectures, Pract. Medicine, of 1791 and 1792.

S E C T. I.

PREDISPOSING CAUSE.

PREDISPOSITION is that state of the body not sufficiently disordered to constitute disease,* but verging towards it, and rendering a person susceptible to the operation of an occasional or exciting cause, which are considered only as possible causes.

In many contagious complaints the body appears always predisposed to receive the contagion of the disease, by a proper application being made; and all that is requisite to produce it, is to be exposed to the effluvia as it flies from the body of the person affected, or fomes from clothes which have been imbued with the contagion; as small-pox, measles, &c. There are others which can only be communicated by contact, or an application of matter made to an absorbing surface, as syphilis, &c. What makes it still more remarkable is, that with respect to the production of the former of these, the body is only predisposed to be operated on by the contagious miasma but once in a person's life: on the contrary, a person being affected with syphilis once, will not render him unsusceptible of receiving the contagion as often as the application of matter be properly made. Likewise, a person is not freed from the operation of the contagion of typhus fever by previously having had the disease.

For the production of typhus fever, particularly as it rages in this country, it is requisite the body should be in a certain state to render the person susceptible to the operation of the occasional cause, when properly applied; and this appears to be a state verging towards debility, or debility actually produced.† It is upon this principle only that we
can

* Brown's Elements of Medicine.

† Dessert. inaug. Edin. 1779. John Bell, de febre maligna.

can account for the contagion not affecting every person within the limits of its action, and carrying devastation over our globe; and in this manner only we can explain why physicians and others attending on the sick in this complaint, obviate its effects, by frequently taking small quantities of some stimulating cordial, by which means the excitement of the system is kept up, and the effects of the noxious powers are avoided. On the contrary, in blockaded places, prisons, or crowded ships, whenever the inhabitants, prisoners, or crews, are debilitated either by a scanty allowance, or bad provisions, or want of fresh air; if a typhus fever should happen to take place, either by foreign contagion being received, or by being produced by the already debilitated bodies, we see it affect almost all within the atmosphere of its operation, and find the contagion increase to such a degree of virulency, as to affect others in whom predisposition is scarcely perceptible.* The debilitating power of the depressing passions greatly favours the action of the exciting cause, particularly fear, which not only operates forcibly in producing predisposition, but also increases the malignity of the disease. This must have frequently been observed by every physician who has had any considerable practice in contagious diseases. Thus, some persons who attended the sick in the plague of Mersailles made use of a preparation of vinegar as a preventative; but then I would rather suppose they escaped the disease more for having full confidence that the vinegar would effectually prevent their taking the infection, than from any real virtue in the preparation which they used, although an antiseptic.

I will

* See the account of the Old Bailey, and Black Assizes of Oxford. Stow's Chron.

I will now take notice of a cause producing predisposition, which perhaps is more common than any before mentioned; which is, the different degrees of heat in opposition to each other, termed heat and cold.

Heat appears to be the most universal and natural stimulus to the animal and vegetable world; a certain degree of it is essentially necessary to be applied to our bodies, in order to produce a moderate degree of excitement, which constitutes health:* but then, when this stimulus has increased to any considerable degree, perhaps there is no greater or more certain cause of producing predisposition, and even disease of the greatest debility, and death itself. This we have an example of in all the diseases of hot climates, particularly cholera and typhus fever. The degree of external heat which appears to be necessary in this climate to produce healthy excitement, is about 65† degrees of Fahrenheit's thermometer; at the same time, the body is capable of bearing a degree of heat considerably above this, without producing any morbid effects.‡

Whenever the heat applied to the human body is below 65 degrees, we then call it cold, or a privation of heat, because there is not a sufficient stimulus of heat to produce an agreeable sensation; and if the degree below 65 be applied for any considerable time, or the degree diminished, it will actually lessen the heat of the body; by that mean, taken off a necessary stimulus to all living bodies, excitement will be diminished, the nervous system

C

become

* Brown's Elements of Medicine, Sect. 221, and onward.

† Romaine's MS. Lectures, Pract. Medic. No. 21 of 1791 and 1792.

‡ Cullen's Practice of Physic, chap. 4. Philosophical Transactions concerning the experiments of heated rooms, made by Doctor Blagden, and others.

become languid, and injured; the strength and vigour of the body will be impaired; sleepiness will at length be produced;* and those symptoms will take place in exact proportion to the diminution of heat below 65 degrees, and its length of continuance, even until it produces death: therefore, we may justly consider cold as one of the causes of pre-disposition to typhus fever.†

It has been much disputed among physicians, whether cold itself would produce typhus fever, without the concurrence of contagion. It must certainly be allowed, that if cold be applied, it will diminish the excitement of the body, but in no other manner than any other debilitating power: and as intermittent fevers appear to have only one source of occasional cause, viz. marsh miasma, so it appears probable that typhus fevers have only one also, viz. *human effluvia*. If we allow cold to produce this disease in one instance, we must allow similarity of cause, *cæteris paribus*, to produce similarity of effect, and we should always have typhus fevers produced in persons exposed to considerable degrees of cold, which is contrary to fact. It is therefore likely, that cold operates only as a pre-disponent cause, which favours the action of contagion,‡ or produces that state of the body which will generate a poison to itself.¶ It is here worthy of remark,

* See the account of Doctor Solander, who sailed with Capt. Cook to the North-west parts of America.

† Cullen's Practice of Physic, chap. iv. Romayne's MS. Lectures, Pract. Medic. No. 22 of 1790 and 1791. London Medical Transactions, vol. iii. p. 343, by John Hunter. Rush's Observations and Inquiries, p. 181, No. 10

‡ Rush's Observations and Inquiries, p. 181, No. 9. "This fever (typhus fever) always prevailed most, and with the worst symptoms, in winter." No. 10. "In all the cases where contagion was received, cold seldom failed to render it active."

¶ London Medical Transactions, vol. iii. paper No. 22. Romayne's MS. Lectures, Pract. Medic. of 1791 and 1792.

remark, that the disease described in the former chapter did not, to my knowledge, affect any children under three years of age, and but few females* in proportion to males; and those of the latter, to whom it proved fatal, were mostly in the prime of life. This at first sight would appear to militate against predisposition being necessary to favour the action of contagion; but in all the cases which I had an opportunity of inquiring into, I found that debility was produced either by immoderate drinking, former disease, or excess of venery, &c. Therefore, I shall annex a table which contains the most obvious causes that generally produce predisposition to typhus fevers, viz.

1. Bad diet.

a Vegetable diet.

b Too scanty allowance of any diet.

c Fish diet.

d Damaged provisions.

e Excessive diet, by which indirect debility may be produced.

2. Fear.

3. Cold below 65 degrees.

a Cold per se.

b ——— combined with moisture.

4. Heat long continued, so as to produce indirect debility.

5. Intemperance in drinking.†

6. Excess in venery.‡

7. Fatigue.

* Dissert. Inaug. John Bell, de febre maligna. Edin. 1779, in which there is a similar remark.

† Rush's Observations and Inquiries, p. 181—"Drunken soldiers and convalescents were most subject to this fever," viz. the camp fever.

‡ "Immoderata seminis profusio non tantum utilissimi humoris jactura, sed ipso etiam motu convulsivo, que emittitur, frequentius repetito, imprimis lædit." Gaubii Patholog. sect. 562.

Riverius, in the plague at Leipzig, says scarcely any young married people escaped.

7. Fatigue.
8. Uncleanliness.
9. Sudden vicissitudes of heat and cold.
10. Grief and anxiety.
11. Previous disease.
12. Long study, without proper exercise.
13. Idleness, or want of exercise.
14. Violent passions of the mind.
15. Long watching.
16. Confined air.

S E C T. II.

OCCASIONAL, or EXCITING CAUSE.

TYPHUS fever being sometimes epidemic, as we have an instance in the disease related in the former chapter, has led many physicians to attempt the explanation of its occasional, or exciting cause, by supposing certain changes to take place in the atmosphere, or that the air is impregnated with particles arising from putrifying animal or vegetable substances:* others again supposed it merely depended upon increased predisposition, or any thing which would produce a sufficient degree of debility.† However respectable the authorities which support these opinions may be, yet, if we pay a little attention to the method of cure in those fevers, and the places where they mostly rage, I am confident we will be convinced that the putrefaction of animal and vegetable substances is not essentially necessary to produce typhus fever; on the contrary, it cannot operate as an occasional cause, but only increases predisposition

* Sir John Pringle on jail and hospital fevers.

† Brown's Elements of Medicine.

predisposition by contaminating the air, and thereby rendering it less proper for respiration; and that something more is generally wanted than predisposition already mentioned.

The effluvia exhaling from substances verging to putrefaction, or which have already passed into that state, has been supposed to produce a disease of a putrid nature, by being absorbed into the mass of fluids, and there producing a fermentation similar to what takes place in dead matter. In this manner of reasoning, however, I suspect we are apt to annex vague and ill-defined ideas to terms; and inferences may be drawn from chemical laws upon inanimate matter, which, when applied to bodies endowed with a living principle, will by no means be just, but subject to lead us into error.

If we presume that fermentation takes place, as has been supposed, the fluids will be assimilated; in that case we should only have to correct the putrid fermentation, and relieve the patient from the most deplorable situation compatible with life; but daily experience convinces us this is not the case. In large cities, where there is a great proportion of animal matter continually putrifying, this fever is not more common than in other places, unless contagion be produced by another cause. And if debility only were necessary to produce typhus fever, we should always have it to take place whenever the body was reduced to a certain state of weakness, which we find is not the case; for in the dropsy, and in many other diseases, we see debility carried so far as even to produce death, and no such fever appears. In small-pox, measles, syphilis, &c. each appears to depend on a specific contagion applied to the body:—Now, if we allow typhus fever to be a contagious disease, which is not doubted by any one acquainted with the present state of medicine, I think
it

it will appear equally probable, that typhus fever depends on a specific contagion as well as many other diseases: therefore I am of opinion, that the occasional cause of typhus fever is a contagion, or effluvia* arising from living or dead bodies affected with the same disease, or the exhalation from living bodies being retained a considerable time in some porous substances,† so as to undergo a fermentation or concentration, by which means it will be enabled to operate on bodies predisposed to receive it.

Although much has been said respecting contagion, by men high in medical reputation, we must still acknowledge we know little of its properties. We can only note its effects, as they take place in bodies exposed to its action; and these effects being so different in persons differently predisposed, that the judgment formed concerning the nature of the contagion must be very uncertain. But, because we cannot investigate its peculiar nature, shall we reject the idea? By no means. If we do, we may with the same propriety reject the foundation of some of the most beautiful theories in nature.

The operation of contagion appears to be much more virulent near the source from whence it arises, and when it becomes diffused in the air, it is rendered weaker, or entirely inert; therefore, by freely ventilating places impregnated with contagious matter, the effluvia will be so divided in the atmosphere, as to render it little, or not at all, hurtful.

Persons frequently exposed to this contagion, or living within its atmosphere, become less susceptible of its operation than others who have not been accustomed to its effects. This shews the wonderful power our bodies have in accommodating themselves

* Edin. Med. Com. vol. viii. p. 196. Romaine's MS. Lectures, Pract. Medic.

† Lcutsom's Observations and Cases on putrid fevers.

selves to the action of any thing which may prove injurious to them. At the same time, convalescents in this disease, if exposed to a new application of contagion, not unfrequently are affected more severely than at the first attack.* The exhalation going off from the human body in a state of health, or when affected with a disease not contagious, is generally considered as unhurtful, and therefore has had little or no attention paid to it; but if it be long confined for want of free ventulation, or retained in the apparel or bed-clothes of the person, it will be concentrated or acted on in such a manner as to produce a contagion little inferior in degree of virulency to that which comes from the body of a person labouring under typhus fever. But most frequently this does not affect the person's producing it so much as it does others; because the body becomes accustomed to its action,† unless the person by whom it is produced be diseased, in which case the predisposition will be increased. This evidences the great necessity of cleanliness and change of apparel.

Contagion may be communicated by fomites,‡ as clothes imbued with the contagious miasma, and beds which have been used by patients affected with this disease, both which will retain the miasma a considerable time; and if confined in any manner so as to prevent the air being freely applied thereto, its virulency will be greatly increased, which would lead us to suppose that this contagion underwent
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* Cullen's Practice of Physic, vol. i. p. 27.

† Medical Transactions, vol. iii. p. 345. And the effects produced in jails, hospitals, prison-ships, &c. Medical Commentaries, decad ii. vol. ii. p. 38, 39.

‡ Rush's Observations and Inquiries, p. 182, No. 5.

Lettson on putrid fevers, p. 51. "Woollen, and all porous substances, seem adapted to absorb and retain infection or putrid effluvia, which by retention and accumulation acquires more virulency and activity."

some state of fermentation. A melancholy proof of this we have recorded in Stow's Chronicle, in what is called the Black Affizes of Oxford:—"On the
" 4th, 5th and 6th days of July, 1577, were the
" affizes held at Oxon, where was arraigned and
" condemned, Rowland Jenkins, for a seditious
" tongue; at which time there arose amidst the peo-
" ple such a damp, that almost all were smothered.
" Very few escaped that were not taken.—Here
" died in Oxon three hundred persons; and sick-
" ened there, but died in other places, two hundred
" and odd."—Another instance we have in the un-
happy session at the Old Bailey, in the year 1750,
when four of the bench, a considerable number of
the jury, and other persons present, received the
infection, and died from the fomites brought with
the prisoners into court.

Some physicians have supposed this fever was immediately produced, in the instance mentioned, by an exhalation from a large quantity of mud which had been thrown out of the slips on the adjoining docks, near Peck's-slip, where the disease first appeared; however, this was nothing more than a miasma similar to that which arises from marshes, when acted on by the heat of the sun, and consequently could not produce putrid fever any otherwise than by increasing predisposition. I am also induced to doubt this being the immediate cause of this fever, from the persons who were first affected residing at some distance from the dock on which the mud was deposited. The slips were cleared out in the same manner, and the mud deposited in like situations, in other parts of the city, near which no such fever appeared, until it extended gradually from the place where it first shewed itself.

S E C T. III.

PROXIMATE CAUSE.

A KNOWLEDGE of the proximate causes of diseases is necessary to be understood by every physician; as the chief part of the cure depends immediately upon it:*. But the proximate cause of fevers has eluded the research of every one who has endeavoured to investigate it, at least the inquiries into this part of medicine have not met with such success as that of many others; and at present our knowledge of the proximate cause of typhus fever is incomplete, and in some manner doubtful. If, however, I may be allowed to give an opinion on this subject, from the many causes which tend to produce predisposition, as before related, and from the effect of the occasional cause appearing in the system, all which shew the greatest signs of debility; a like inference may also be drawn from the only remedies which are found to have been effectual in the cure of this disease, which are either tonics or stimulants. I therefore think we should consider debility as the proximate cause of typhus fever; and upon this we can establish the most natural and effectual method of cure.

The doctrine of spasm being the proximate cause of typhus fever, although very ingenious, and supported by the celebrated Doctor Cullen, appears incompatible with the method of cure and the phenomena of this disease. If spasm be the proximate cause, why do we not find warm bathing, blood-letting, and other antispasmodics, cure the disease? But these only aggravate and increase the most dangerous symptoms. True, we may say that tonics
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and

* Cullen's Practice of Physic, parag. 4.

and stimulants are antispasmodics, and thus some may suppose they effectuate a cure by relieving the spasm, and by giving tone to the system prevent its recurring again, similar to what takes place in the cure of tetanus and spasmodic affections in cholera; but in this fever we have no real evidence of spasm, which in those two diseases we have: I therefore attribute the good effects of these remedies wholly to their obviating debility.

As to the phænomena of the disease, we find perspiration and even sweating not unfrequently continue a considerable length of time, sometimes several days, and even through the whole course of the disease,* when the spasm on the surface must be relaxed; and still the fever remains.

What can evidence debility more clearly than what is manifested by the symptoms of languor and lassitude in the beginning of the disease, together with anorexy, nausea, and vomiting? And as the disease continues, are not want of appetite, coldness of the extremities, tremblings, inability in walking or other exercise, weakness and quickness of the pulse, frequent sighings and faintings, cold clammy sweats, impaired state of the vital functions, continual slipping down in the bed, want of sleep, petechia, with all the other symptoms which take place near the close of the disease, and even death itself, undeniable proofs of great debility being present in the system?—I therefore shall form my general indication of cure from the supposition of debility being the proximate cause.

CHAPTER

* *Sudor Anglicus Sennertus de febre, lib. iv. chap. 15.*

CHAPTER IV.

P R O G N O S I S.

IF in the beginning of the disease which I have made the subject of this dissertation, the inflammatory symptoms ran high, attended with delirium, want of sleep, great anxiety, and about the third day no remission took place, but the pulse became smaller and quicker, respiration frequent and anxious, attended with vomiting, and in the progress of the disease these symptoms became more severe, accompanied with cold clammy sweats, succeeded by petechia,—generally indicated an unhappy prognosis, particularly if the irritability of the stomach was such as not to allow the retention of any medicine.

On the contrary, if on the third day a remission appeared, the pulse became slower, more soft and full, delirium began to abate, nausea and vomiting, if any had appeared, now ceased, so that any thing would remain on the stomach, we might prognosticate a favourable termination; though sometimes this abatement of the symptoms was later in taking place. However, by the fifth or seventh day a pretty just prognosis could be formed.

CHAPTER V.

M E T H O D of C U R E.

AS I have endeavoured to establish the proximate cause of this disease as it appeared, to be debility, which, from what has been said in the former sections,

tions, I think will appear pretty evident, I will found the method of cure in obviating debility, taking into consideration the predisposing and occasional causes.

1st. To avoid, as far as may be, any further effects being produced by the occasional cause.

2d. To relieve or remove any thing which may tend to obviate the more completely fulfilling the third indication; which is,

3d. To restore and support the tone of the system.

The first indication may be fulfilled by having the patient removed from all contagious matter as speedily and effectually as possible, and placed in a large chamber, which will admit of free ventulation: by this mean his own effluvia will not be allowed to stagnate, but be continually carried off in the air. The temperature of the room should be governed in some measure by the predisposition of the person affected, and the stage of the disease. In the beginning of this fever, persons who were naturally predisposed to inflammatory diathesis, and by some irregularities had indirect debility produced, so as to favour the operation of the occasional cause, in whom inflammatory symptoms were generally very violent, for two or three days the temperature of the room should be below 65 degrees, so that it might diminish the increased action of the system, which would tend to produce healthy excitement.

By having the bed-clothes and body linen changed at least once in every twenty-four hours; and the shirts should be wetted in good strong vinegar, and dried without being wrung,* so that as much of the acid might remain on the linen as possible, which acts as an antiseptic to the body, and tends to correct that disagreeable smell of the perspiration which is always an attendant on this disease; and indeed to
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* Romaine's MS. Lectures, Pract. Med.

have the body washed all over with vinegar* not only tends to prevent putrescency, but keeps the surface of the body clean, which is of very great moment in the cure of typhus fever.—By not allowing any excrementitious matter to remain in the room, but to have it removed immediately; dirty clothes should also be removed from the apartment, so that the air in the room may be kept as pure as possible.—By evacuating the contents of the bowels once in twenty-four hours. And by paying attention to the circumstances above related, every accumulation of effluvia will be prevented, and of course its virulency must be diminished.

To fulfil the second indication. If called early in the disease, when the strength of the patient was but little impaired, or if there were signs of crudities in the stomach, which most generally was the case, the administration of an emetic† proved of the greatest benefit, not only in unloading immediately the stomach, but frequently with great relief to the pain in the head, by inducing a more equal circulation throughout the system. The choice of the emetic should depend on the symptoms of the patient. If there were, as frequently happened, considerable inflammatory symptoms, as a pretty full hard pulse, skin dry, countenance flushed, with a pain in the head, an antimonial emetic should be preferred, which, whilst it evacuated the contents of the stomach, would relax the system more than any other: this would sometimes produce a remission, and prove a crisis to the disease. On the other hand, if the person appeared debilitated, and we wished only to clear the stomach, an emetic of ipecacuanha‡ would be preferable: this would
unload

* Edin. Medical Commentaries, decad ii. vol. vi. p. 383.

† Cullen's Practice of Physic, parag. 131 and 172. See Lind on fevers and infection.

‡ Cullen's Practice of Physic, parag. 181.

unload the stomach without increasing debility as much as any preparation of antimony. After the operation of the emetic, in order to prevent the debility increasing, and to take off the irritability produced by the action of vomiting, an anodyne was administered with advantage.

In some cases, the first day or two of the disease put on such inflammatory symptoms, by the increased action of the arterial system, attended with violent pains of the head, and delirium, as made it necessary to moderate the inflammatory diathesis. This appears more immediately necessary, when we come to consider the effects of violent action in the system, which frequently takes place in those fevers; when the collapse, or state of debility, in a short time will be in proportion to the inflammatory symptoms which have preceded: consequently it is much better to prevent the system being worn down by too great excitement, and to endeavour to moderate its action in such cases by relaxing remedies; but this should be done with the greatest caution, as the danger of the disease depends on the debility which ensues.

Blood-letting being the most effectual way of reducing the inflammatory diathesis, was made use of by many physicians, not considering the natural tendency of this disease towards debility, consequently putrescency; but this, like almost all other contagious diseases, particularly of this kind, bore the loss of blood very badly; and in a few hours after blood was drawn, the pulse would sink, when a prostration of strength, and other signs of debility, appeared: the disease would increase with such rapidity, that the power of medicine would be scarcely able to rescue the patient from the jaws of death.

Whenever it be necessary to moderate the action of the system, after the contents of the bowels are evacuated,

evacuated, some preparation of antimony,* as James's powder, calx nitrata antimonii, or even tartar emetic, either, frequently given in small doses, not however so as to produce vomiting, will safely and effectually moderate the excitement, and bring on a gentle perspiration, so as in a short time to prepare the body for the administration of the bark: though in many cases the fever from the beginning shewed such signs of debility, or the physician not being called at an early period of the disease, rendered the second indication unnecessary, when recourse should immediately be had to the third; which is,

To restore and support the tone of the system.

The first thing which should claim our attention, after considering ventilation, as before mentioned, is the temperature of the patient's chamber. In this, I think we often commit an egregious error, either from taking our ideas from authors who have written on the disease, as it appears in hot climates, where the debilitating power of cold could not be obtained, or from our not having paid sufficient attention to the difference between inflammatory diseases, and the one of which I am treating: for, if we consider that we are administering tonics and stimulants to increase the excitement, and at the same time applying the debilitating power of cold, which must diminish it, we will be fully convinced, that the degree of temperature in the room should be that which will afford a gentle stimulus, not to increase debility; at least this practice will be more consistent one part with the other. Another wrong conclusion which has led physicians into an error, concerning the supposed good effects of cold, is attributing the effects of pure or fresh air, obtained by free ventilation, to the cold to which the patient

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* Cullen's Practice of Physic, parag. 182.

was exposed in obtaining this air.* However, since a sufficient number of experiments evince the capability of this disease raging with great violence in cold climates, or cold seasons of the year,† it appears sufficiently evident, that no good effects can, but many bad ones may, arise from the debilitating power of cold; but by heat being applied so as to be gently stimulant, much benefit will ensue,‡ and at the same time we may have free ventulation:— Therefore the temperature of the patient's chamber should be about 65 degrees of Fahrenheit's scale.

If the bowels be costive, they should be evacuated by glysters, which are not followed by the degree of debility that cathartics are; and they are better combined with vegetable acid, which acts in some measure as an antiseptic.

Peruvian bark, although thrown out of the *materia medica* by the ingenious Doctor Brown and his strict followers, still stands high on the list as one of the most effectual remedies in the cure of fevers. We should begin the administration of this valuable remedy as soon as typhus symptoms appear, and not wait till an evident intermission or remission takes place, which frequently is not effected until the patient resigns his life.¶ It should be given in as large quantities as the stomach of the patient will bear, at least an ounce or more in twenty-four hours: this is best given in powder; but the irritability of the stomach in the fever which prevailed in New-York was such that in most cases the bark could not be retained, and in others the stomach could bear neither medicine nor diet, in which cases the

* Lettsom's Observations and Cases on putrid fevers.

† London Medical Transactions, vol. iii. p. 345.

‡ Brown's Elements of Medicine, vol. ii. p. 7, 8, &c.

¶ Lettsom's Observations and Cases on putrid fevers. Cleg-horn on the diseases of Minorca.

the bark was freely administered in glysters, previously emptying the bowels with an acetous injection.* It is remarkable that the bowels generally retained these bark injections for several hours, or until they were brought away by having the acetous ones repeated; though in many cases, when the powder could not be retained on the stomach, a cold infusion in water, or joined with an alkali, or a mixture of the tincture of bark, would be retained with the most happy effects.

Spirituuous fomentations of the inferior extremities most generally took off the irritability of the stomach, so as to enable it to retain the necessary remedies, and frequently relieved it when the direful symptom of vomiting had already taken place.

Wine, the most natural stimulus belonging to the materia medica, should be given freely, and bark at the same time administered. The best kind is old Madeira, or genuine Port; the former is to be preferred; and when the debility is very great, its stimulus may be increased by heat, and being spiced: this should be administered in as large quantities as the patient can bear, without producing intoxication or indirect debility; though, when the disease is severe, one or two bottles, or even more, may be taken in twenty-four hours with advantage. However, in the use of this remedy we should pay particular attention to the former habits of the patient, as whether he has been accustomed to the use of wine, or distilled or fermented liquors. If the patient has been in the use of spirituuous liquors before he became sick, this would be the most natural stimulus; and indeed in such cases we should not be able to produce a sufficient excitement by wine or beer; therefore spirits or brandy, in water, becomes immediately necessary, and in other cases

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* Romaine's MS. Lectures, Practice of Medicine.

may be advantageously used. Punch is generally very agreeable to the stomach, and proves a useful stimulant: I have seen warm punch stop a vomiting in a very debilitated state, when nearly all the other stimulants had failed.

Beer, such as porter,* to those who are accustomed to its use, is a very valuable remedy, and for others it frequently becomes necessary to change the stimulus, as the person gets tired of the use of one: here porter may be used with the greatest advantage: the carbonic acid which it contains has been much extolled in the cure of putrid fevers; indeed, if there be much virtue in this acid, or air, it may be administered in this very beautiful manner, far exceeding the nauseous yeast remedy,† which, by some physicians, was extolled almost as a catholicon.

Opium comes next to be noticed—a medicine which, by physicians, has long been considered as a palliative only in this disease; but, from the most authentic testimonials of its operation, at present its stimulant effect is generally allowed; consequently it is well suited to obviate and remove the causes of this disease;‡ indeed, it supercedes the use of many other stimulant remedies. The celebrated Doctor Mead

* Lettsom's Observations and Cases on putrid fevers.

† Some physicians, in the time of this disease, extolled their own peculiar remedy; and many people were led to believe, that in consequence of this remedy, they cured all their patients; by which trick probably some patients might be obtained: and this was nothing less than a quantity of yeast put in a decoction of bark, which being placed in a degree of heat so as to ferment, was then to be taken; and in this manner they produced a quantity of carbonic acid. In the days of Macbride, and other sticklers for the doctrine of fixed air, or carbonic acid, being the bond of union in all animal bodies, this theory might appear plausible; but at this time it is truly laughable that they should put their dependence on such a remedy. However, they were very cautious to combine it with bark.

‡ Brown's Elements of Medicine. Edin. Medical Commentaries, decad ii. vol. i. p. 195. Fordyce on fevers, p. 165.

Mead might well call it the “magnum donum Dei.” The best method to give it is in the form of laudanum, in some cordial mixture, in small quantities at a time, and frequently repeated, until the stomach be able to retain wine, with some preparation of animal food; at which time the quantity of laudanum must be diminished, as the other is increased. When delirium comes on, with all its attendants, and every symptom grows more alarming, uneasy days are succeeded by restless nights, and the patient is exhausted by pain and watching, a full dose of opium relieves, in a measure, all those disagreeable symptoms, and produces sleep, which is the sick man’s elysium; it revives his hope, it is his most desirable state, and by which the strength and vigour of the system will be recruited: indeed, there are few things which wear out the system more than continual watching, which is thus happily prevented. In convulsions also, and subfultus tendinum, which appear in the latter stages of this disease, there is nothing has so powerful an effect as opium; and when vomiting prevents its being retained on the stomach, it may be administered in glysters with advantage.*

Volatile alkali, camphire, musk, &c. have been used by their admirers; but they are all less powerful stimulants than opium, and therefore not equal to those already mentioned. I saw volatile alkali and camphire used in this disease with little or no effect.

Vitriolic æther is another powerful stimulant, and has been extolled by some, when singultus takes place; but I think it is superseded by the use of opium.

Blisters, which have long been disputed among physicians, whether their good effects were owing to

* Any medicine administered in glysters should be double the quantity that would be necessary to be taken in the stomach.

to their stimulating or debilitating power, were used by some in every stage of the disease, which generally proved hurtful, unless in the beginning, when a violent pain frequently took place in the head; a blister then applied between the shoulders mitigated, if not entirely relieved it; but when used in the latter stages of the complaint, their good effects did not appear manifest. Lettsom says,* "In these fevers I do not find any evident advantage "from the use of vesicatories."

Diet. As soon as the patient has an inclination for food, or his stomach will retain it, he should be indulged therein: this ought to be of the most nutritious kind, so that in small quantities it may contain much nourishment, and so prepared as to be easy of digestion; the best form of which, we have in good beef broth, when the oily part, which is apt to nauseate the stomach, is taken off: this may be well seasoned, a spoonful given at a time, and often repeated; and as the stomach grows more invigorated, the quantity should be increased.

Besides the remedies above related, there are others of no little moment, which should be attended to; as external stimulants, and the passions of the mind.

That degree of light should be admitted in the chamber, which will be most agreeable to the patient's own sensation. Sounds may sometimes be allowed with advantage: these should be of the soft harmonious kind, as soft music, or pleasing conversation of friends, which will attract the patient's attention, prove an agreeable stimulus, and thus prevent delirium coming on at the accustomed period.

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* Lettsom's Observations and Cases on putrid fevers, p. 45. Tiffot de febre biliosa. Fordyce on fevers. Baglivi. Van Swieten's Commentaries on Boerhaave's Aphorisms.

In the latter stage of this disease, the body and extremities of the patient should be washed with warm spirits or brandy.

The passions of the mind have a very great effect on the body: hence the fear of death, or grief for the loss of any friend or relative, has a powerful operation in diminishing the excitement; therefore it becomes the duty of the physician to encourage and soothe his patient, and endeavour as far as possible to gain his confidence. It is the duty of the sick man's friend to prevent any disagreeable news being brought him; and all, while in his chamber, should appear cheerful and serene: this, in a great measure, will prevent any depression of his mind, whereas the contrary will tend greatly to increase the malignity of the disease.

As the patient gains strength, the quantity of wine, and other diffusible stimuli, should be diminished in proportion as the stomach is enabled to digest an increased quantity of permanent food, until it attains its accustomed state; when the usual occupation and exercise will soon make joyous his mind, for a restoration of that health, to which, previous to disease, little attention had been paid; and his friends will rejoice to see him returned to their former association.

Many persons, after the fever, as it prevailed in the city of New-York, had entirely left them, were troubled with pains in different parts of their body, which gave way most readily to the volatile tincture of gum. guaiac. and other medicines proper for relieving chronic rheumatism.

The accidental symptoms of catarrh and pneumonia, which took place in some cases, were most effectually relieved by local applications proper for such complaints.

THE END.

Doctor Buseton

from his friend

The Author





Med. Hist.

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